

Thomas Theodore Mabry
Serial No.: 09/641,685

REMARKS

Reconsideration of the Office Action is respectfully requested.

Claims 4 to 14 are in the application.

The present invention is directed to an improved image intensifier tube wherein the holding means for the microchannel plate (MCP) does not add length to the tube. This is accomplished by providing a one-piece longitudinally extending cylindrical member having a cylindrical interior surface in which there is a recess. The MCP is supported in the recess.

The claims stand rejected under 35 USC §102 and 35 USC §103 as being anticipated or obvious over Flanary, U.S. Patent No. 5,404,072. The rejections are respectfully traversed as applied to the amended claims presented herewith.

The Flanary patent discloses an MCP support means which employs a "snap ring" similar to the prior art embodiment shown in Figure 2 of the present application (which adds length to the image intensifier tube). The concept and structure are totally different than the recessed collar of the present invention. For example, the free-body force diagram in Flanary would be similar to that shown in Figure 3 of the present application, representative of the prior art, rather than that depicted in Figure 6, which is representative of the present invention.

Amended claim 12 now recites that the cylindrical collar is "one-piece" and that it has "longitudinally extending interior and exterior cylindrical surfaces which are parallel to each other along the entire length of the exterior cylindrical surface."

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This clearly defines over Flanary where any structure which could be construed as a "collar" is two piece rather than one-piece. Referring to Figure 3, which is a detail of Figure 2, such would be comprised of metal spring retention ring 104 and conductive layer 100. Moreover, it would not be obvious to make the member out of one piece, because a conductive ring 104 and conductive layer 100 were intended to be connected to different electric potentials to maintain a potential difference across the MCP. Making the "collar" out of one piece in Flanary would cause a short circuit and render the device inoperative.

Additionally, Flanary does not disclose a "collar" wherein the longitudinally extending interior and external cylindrical surfaces are parallel to each other along the entire length of the exterior cylindrical surface (see Figure 4). In Flanary, part of the exterior wall is a sloped surface 106 which is not parallel to the interior cylindrical surface. Moreover, it would not be obvious to render such surface parallel, because it would destroy the spring action necessary to hold the ring in place.

It is thus clear that amended claim 12 defines patentably over the prior art. The claims dependent on claim 12 are patentable at least for the same reasons as claim 12.

In view of the above, a Notice of Allowance is respectfully solicited.

Respectfully submitted,



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Version of Amendments to Claim with Markings to Show Changes Made

Please amend claim 12 as follows:

12. (Amended) An image intensifier tube comprising a housing which holds a photocathode, a screen, and a microchannel plate, wherein a support for the microchannel plate comprises a one-piece longitudinally extending cylindrical collar in the housing having longitudinally extending interior and exterior cylindrical surfaces which are parallel to each other along the entire length of the exterior cylindrical surface, the interior cylindrical surface but not the exterior cylindrical surface having a cylindrical recess indented therein such that there are interior cylindrical portions on both sides of the recess and the microchannel plate is held in the recess, the cylindrical collar further having an annularly shaped base which extends radially from the external cylindrical surface for mounting the collar in the housing.